Form 3160-3
(April 2004)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

RECEIVED
JAN 22 2008
Bureau of Land Management
Farmington Field Office

FORM APPROVED
OMB NO 1004-0137
Expires March 31, 2007

RCVD NOV 19 '08
OIL CONS. DIV.
DIST. 3

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No: NMNM-28277

1a Type of Work: [X] DRILL [ ] REENTER

6. If Indian, Allotee or Tribe Name:

1b. Type of Well: [ ] Oil Well [X] Gas Well [ ] Other [ ] Single Zone [ ] Multiple Zone

7. Unit or CA Agreement Name and No.:

2 Name of Operator: Energen Resources Corporation

8 Lease Name and Well No.: Carracas 17 B #1

3a. Address: 2010 Afton Place Farmington, New Mexico 87401

3b. Phone No. (include area code): (505) 325-6800

9. API Well No.: 30-039-30472

4 Location of Well (*Report location clearly and in accordance with any State equirements)**

At surface: 595 fsl, 2055 fel UL O

At proposed prod. zone: 760 fnl, 760 fel UL A/Lot 1 Lot 15 (O)

10. Field and Pool, or Exploratory: Basin Fruitland Coal

11. Sec., T , R., M., or Blk. and Survey or Area: Sec 17, T32N, R4W

14. Distance in miles and direction from nearest town or post office*: Approx. 9 miles SE of Arboles, CO.

12. County or Parish: Rio Arriba

13. State: NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drg. unit line, if any)	16 No. of Acres in lease	17. Spacing Unit dedicated to this well
760'	2525.47	320 E/2 - ~~316.47~~ acres
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft.	**19. Proposed Depth**	**20. BLM/BIA Bond No. on file**
75'	7343' (MD)	
21. Elevations (Show whether DF, KDB, RT, GL, etc	**22 Approximate date work will start***	**23. Estimated duration**
7366' GL	5/25/08	25 days

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, shall be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO shall be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification.
6. Such other site specific information and/or plans as may be required by the authorized officer.

SEE ATTACHED FOR CONDITIONS OF APPROVAL

25. Signature	Name (*Printed/Typed*)	Date
	Nathan Smith	1/11/08

Title: Drilling Engineer

Approved by (Signature)	Name (*Printed/Typed*)	Date
/s/ Man Kieczorek		11/12/08
Title	**Office**	
AFM	FFO	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction

*(Instructions on page 2)

NOTIFY AZTEC OCD 24 HRS. PRIOR TO CASING & CEMENT

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

Hold C104 for Directional Survey and "As Drilled" plat

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

DRILLING OPERATIONS AUTHORIZED ARE SUBJECT TO COMPLIANCE WITH ATTACHED "GENERAL REQUIREMENTS".

NOV 18 2008

NMOCD

DISTRICT I
1625 N. French Dr., Hobbs, N.M. 88240

DISTRICT II
1301 W. Grand Avenue, Artesia, N.M. 88210

DISTRICT III
1000 Rio Brazos Rd., Aztec, N.M. 87410

DISTRICT IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals & Natural Resources Department

OIL CONSERVATION DIVISION
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-102
Revised October 12, 2005

Submit to Appropriate District Office
State Lease - 4 Copies
Fee Lease - 3 Copies

RCVD AUG 25 '08
OIL CONS. DIV.
DIST. 3

☐ AMENDED REPORT

WELL LOCATION AND ACREAGE DEDICATION PLAT

[1] API Number	[2] Pool Code	[3] Pool Name
30-039-30472	71629	BASIN FRUITLAND COAL

[4] Property Code	[5] Property Name	[6] Well Number
35657	CARRACAS 17B	1

[7] OGRID No.	[8] Operator Name	[9] Elevation
162928	ENERGEN RESOURCES CORPORATION	7366'

[10] Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
O	17	32N	4W		595'	SOUTH	2055'	EAST	RIO ARRIBA

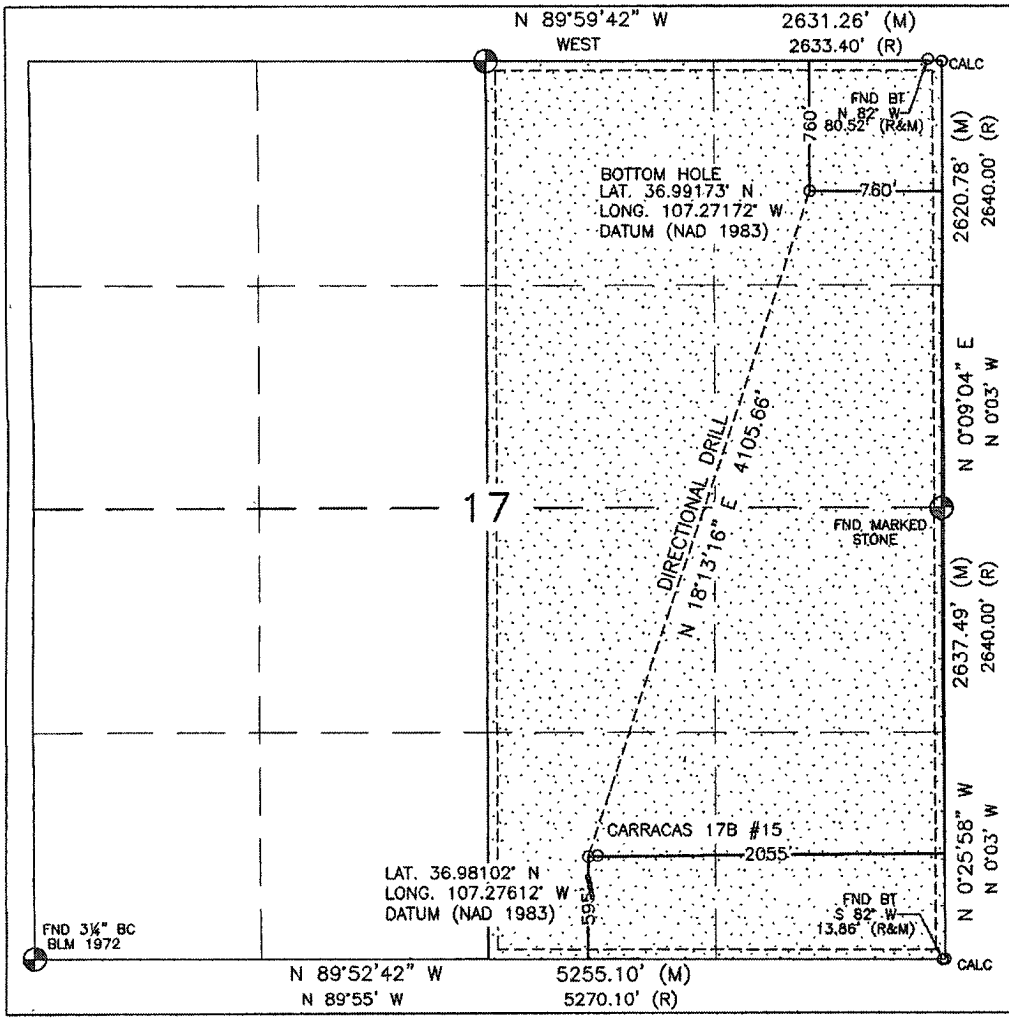
[11] Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
A	17	32N	4W		760'	NORTH	760'	EAST	RIO ARRIBA

[12] Dedicated Acres	[13] Joint or Infill	[14] Consolidation Code	[15] Order No.
316.87 Acres - (E/2)			

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16



17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner or a compulsory pooling order heretofore entered by the division.

Signature — Date: 8/22/08

Nathan Smith
Printed Name

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

JUNE 11, 2007
Date of Survey

Signature and Seal of Professional Surveyor:

DAVID R. RUSSELL
NEW MEXICO
10201
REGISTERED PROFESSIONAL LAND SURVEYOR

DAVID RUSSELL
Certificate Number 10201

Operations Plan
January 10, 2008

Carracas 17 B #1

General Information

Location	595' fsl, 2055' fel at surface 760' fnl, 760' fel at bottom nene 17, T32N, R4W Rio Arriba County, New Mexico
Elevations	7366' GL
Total Depth	7343' (MD), 4171' (TVD)
Formation Objective	Basin Fruitland Coal

Formation Tops

San Jose	Surface
Nacimiento	2341' (TVD), 2343' (MD)
Ojo Alamo Ss	3435' (TVD), 3570' (M)D
Kirtland Sh	3705' (TVD), 3848' (MD)
Fruitland Fm	3785' (TVD), 4026' (MD)
Top Coal	3996' (TVD), 5158' (MD)
Bottom Coal	4171' (TVD)
Total Depth	**4171' (TVD), 7343' (MD)**

Drilling

The 12 ¼" wellbore will be drilled with a fresh water mud system.
The 8 ¾" wellbore will be drilled with a low solids fresh water/polymer mud system. Weighting materials will be drill cuttings and if needed barite. Mud density is expected to range from 8.9 ppg to 9.5 ppg.
Projected KOP is 1995' TVD with 2.65°/100' doglegs.
The 6 ¼" wellbore will be drilled with a fresh water or brine water system depending on reservoir characteristics. Anticipated BHP can be as high as 1100 psi.
Blowout Control Specifications:

A 2000 psi minimum double ram or annulus BOP stack will be used following nipple up of casing head. During air drilling operations, a Shaffer Type 50 or equivalent rotating head will be installed on top of the stack. A 2" nominal, 2000 psi minimum choke manifold will also be used. An upper Kelly Cock valve handle and drill string valve should be available to fit each drill string and be available on the rig floor during drilling operations.

Logging Program:

Open hole logs: None
Mud logs: From 3785' (TVD), 4026' (MD) to TD.
Surveys: Surface to KOP every 500' and a minimum of every 250' for directional.

Tubulars

Casing, Tubing, & Casing Equipment:

String	Interval	Wellbore	Casing	Csg Wt	Grade
Surface	0'-~~200'~~ 320	12 ¼"	9 5/8"	32.3 ppf	H-40 ST&C
Intermediate	0'-4160'(TVD) 5450' (MD)	8 ¾"	7"	23.0 ppf	J-55 LT&C
Production	4147'-4171' (TVD) 5400'-7343' (MD)	6 ¼"	4 ½"	11.6 ppf	J-55 LT&C
Tubing	0'-5300'(MD)		2 3/8"	4.7 ppf	J-55

Casing Equipment:

Surface Casing: Depending on wellbore conditions, a Texas Pattern Guide Shoe on bottom. Casing centralization with standard bow spring centralizers to achieve optimal standoff.

Intermediate Casing: Depending on wellbore conditions, a Cement nose guide shoe with self fill insert float collar on top of bottom joint and casing centralization with standard bow spring and rigid centralizers to optimize standoff. Two turbolating centralizers at the base of the Ojo Alamo are recommended.

Liner: Bull nose guide shoe on bottom of first joint, H-Latch liner drop off tool on top of last joint.

Wellhead

3000 psi 11" x 9 5/8" casing head. 9 5/8" x 7"x 2 3/8" 3000 psi Flanged Wellhead .

Cementing

Surface Casing: 125 sks Std (class B) with 2.0 % $CaCl_2$ and ¼ #/sk Flocele (15.6 ppg, 1.18 ft^3/sk 148 ft^3 of slurry, 100% excess to circulate to surface). WOC 12 hours. Pressure test surface casing to 600 psi for 30 min.

Intermediate Casing: Before cementing, circulate hole at least 1 ½ hole volumes of mud and reduce funnel viscosity to minimum to aide in hole cleanout. Depending on wellbore conditions, cement may consist of 770 sks 65/35 with 6.0 % Bentonite, 2.0 % $CaCl_2$, 10 #/sk Gilsonite, and ½ #/sk Flocele (12.3 ppg, 1.96 ft^3/sk) and a tail of 125 sks Type V with ¼ #/sk Flocele (15.6 ppg, 1.18 ft^3/sk). (1633ft^3 of slurry, 100 % excess to circulate to surface). Test casing to 1200 psi for 30 min.

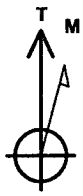
Other Information

1) This well will be an open hole completion lined with an uncemented pre-drilled liner.
2) If lost circulation is encountered, sufficient LCM will be added to the mud system to maintain well control. The intermediate string may need to be cemented in multiple stages with a slurry design deviated from that listed above.
3) If high reservoir pressures or water flows are encountered slurry design may need to be deviated to from those listed above to satisfy wellbore and formation conditions.
4) No abnormal temperatures or pressures are anticipated. This gas is dedicated.

ENERGEN

Project: Carson Nat'l Forest - NE S17, T32N, R4W
Site: Carracas Mesa
Well: Carracas 17 B #1
Wellbore: Preliminary Plan
Plan: Plan #1 (Carracas 17 B #1/Preliminary Plan)

PROJECT DETAILS: Carson Nat'l Forest - NE S17, T32N, R4W	
Geodetic System:	US State Plane 1983
Datum:	North American Datum 1983
Ellipsoid:	GRS 1980
Zone:	New Mexico Central Zone
System Datum:	Mean Sea Level

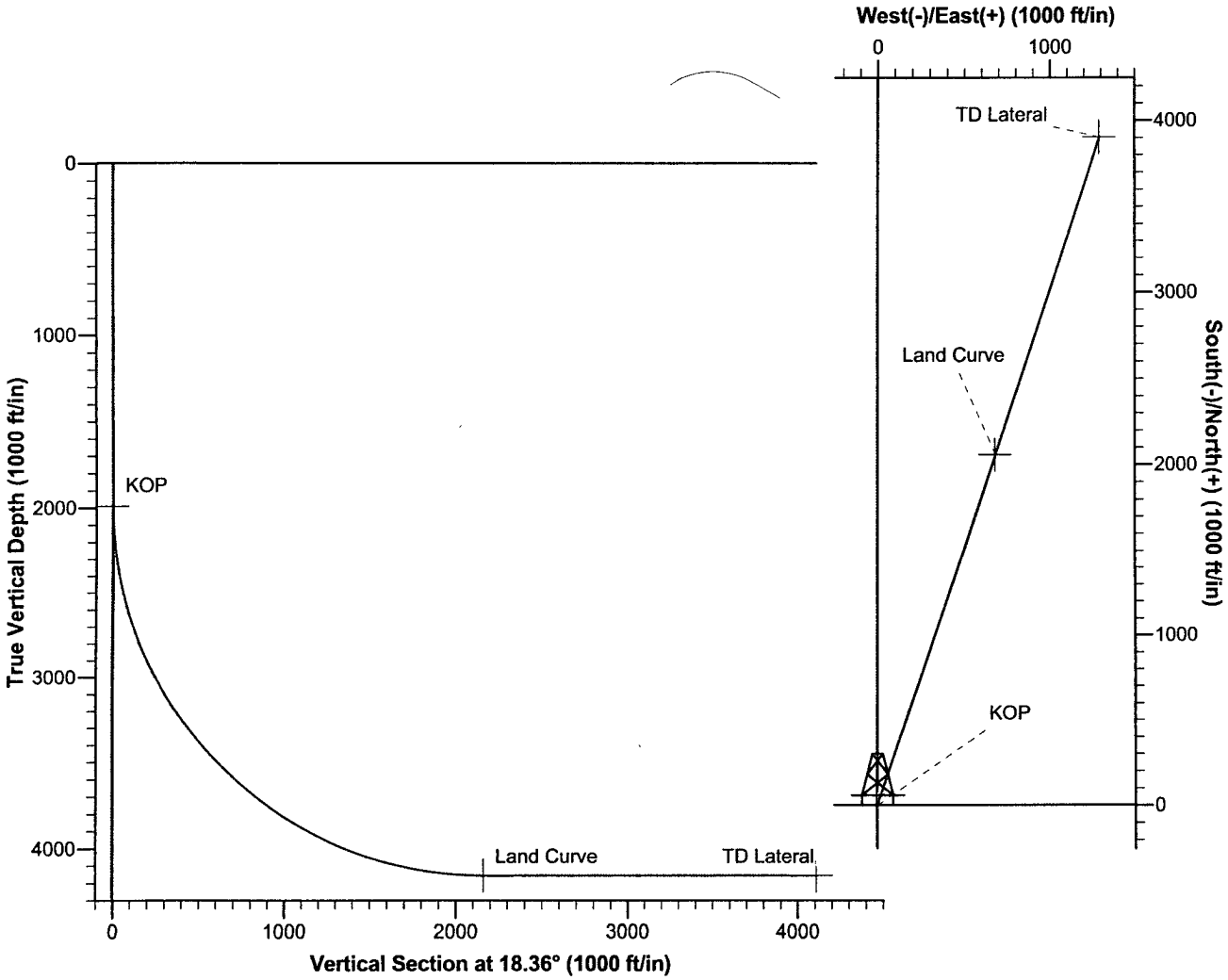


Azimuths to True North
Magnetic North: 10.12°

Magnetic Field
Strength: 51294.2snT
Dip Angle: 63.85°
Date: 1/11/2008
Model: IGRF200510

SECTION DETAILS

Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.0	
2	1995.0	0.00	0.00	1995.0	0.0	0.0	0.00	0.00	0.0	KOP
3	5396.0	90.01	18.36	4160.0	2055.0	682.0	2.65	18.36	2165.2	Land Curve
4	7343.0	89.99	18.34	4160.0	3903.0	1295.0	0.00	-123.78	4112.2	TD Lateral



Energen

Planned Wellpath

Company:	Energen Resources	**Local Co-ordinate Reference:**	Well Carracas 17 B #1
Project:	Carson Nat'l Forest - NE S17, T32N, R4W	**TVD Reference:**	KB @ 7379.0ft (Drilling Rig)
Site:	Carracas Mesa	**MD Reference:**	KB @ 7379.0ft (Drilling Rig)
Well:	Carracas 17 B #1	**North Reference:**	True
Wellbore:	Preliminary Plan	**Survey Calculation Method:**	Minimum Curvature
Design:	Plan #1	**Database:**	EDM 2003.16 Single User Db

Targets

Target Name - hit/miss target - Shape	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Land Curve - plan hits target - Point	0.00	0.00	4,160.0	2,055.0	682.0	2,180,048.64	1,341,411.46	36° 59' 11.991 N	107° 16' 25.626 W
TD Lateral - plan hits target - Point	0.00	0.00	4,160.0	3,903.0	1,295.0	2,181,889.92	1,342,044.33	36° 59' 30.262 N	107° 16' 18.070 W
KOP - plan hits target - Point	0.00	0.00	1,995.0	0.0	0.0	2,178,001.10	1,340,707.36	36° 58' 51.672 N	107° 16' 34.032 W

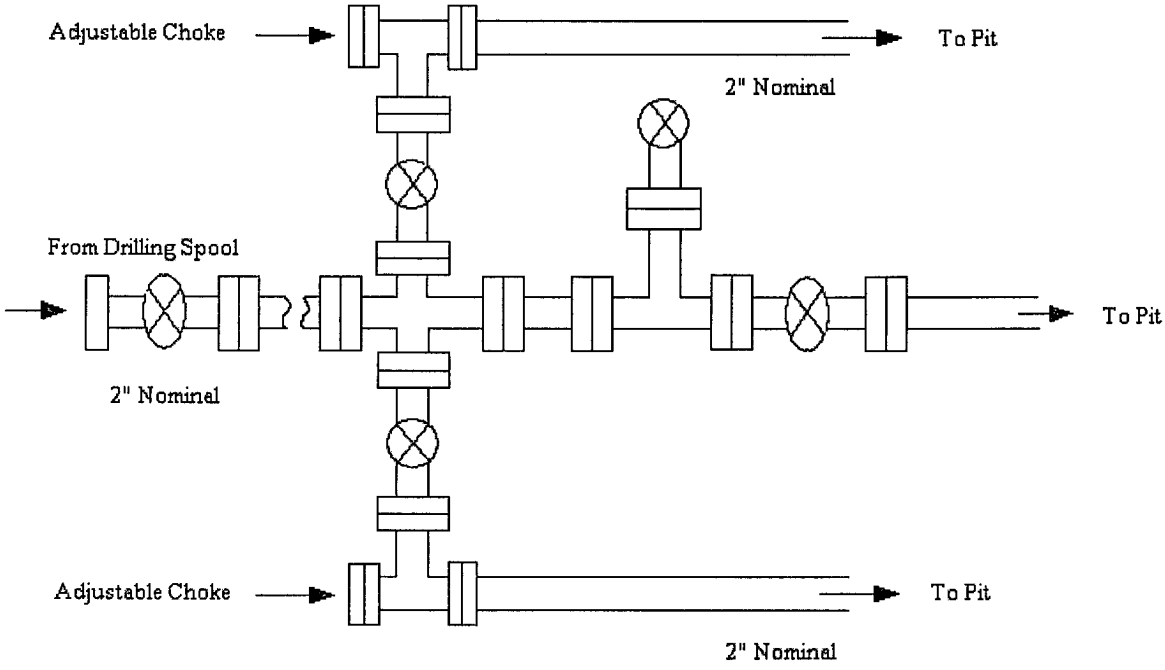
Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
2,342.5	2,341.0	Nacimiento		0.00	
3,848.1	3,630.0	Kirtland Shale		0.00	
0.0	0.0	San Jose		0.00	
5,158.4	4,147.0	Coal Top		0.00	
4,026.1	3,741.0	Fruitland Fm		0.00	
3,570.4	3,435.0	Ojo Alamo Ss		0.00	
	4,171.0	Coal Base		0.00	

Checked By: _____ Approved By: _____ Date: _____

Energen Resources Corporation

Typical 2000 psi Choke Manifold Configuration



Choke manifold installed from surface to TD

Energen Resources Corporation

Typical BOP Configuration for Gas Drilling